

CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, and any attachment thereto, is being transmitted to Group Art Unit 2643 at the United States Patent and Trademark Office to the attention of Examiner Duc Minh Nguyen by facsimile transmission to 703-872-9306 on the date indicated below.


Christopher C. Dremann7/14/04
Date of Signature**PATENT****Expedited Procedure Pursuant to 37 C.F.R. 1.116****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:)	
TIAN et al.)	
Serial No.:)	Group Art Unit: 2643
09/483,756)	
Filed:)	Examiner: NGUYEN, D.M.
January 14, 2000)	
For:)	
A Frequency Sensitive Inductance)	
Device In POTS Splitter Design)	

VIA FACSIMILE: 703-872-9306
Group Art Unit: 2643
Examiner: Duc Minh Nguyen
10 Pages (w/ Exhibit A)

Mail Stop Amendment
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. §1.131 OF INVENTOR HARLEY J. STABER

I, the undersigned inventor of the invention described, shown and claimed in the above-identified patent application, having first been duly warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001), and may jeopardize the validity of the application or any patent issuing thereon, hereby declare and acknowledge the following:

1. I am a joint inventor of the subject matter of claims 1-17 pending in United States patent application Serial No. 09/483,756 (hereinafter "the present application").
2. Claims 1-6 and 9-17 of the present application stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,137,880 issued to Bella on October 24, 2000 (Bella). Claims 7 and 8 of the present application stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bella in view of U.S. Patent No. 6,567,519 issued to Ham on May 20, 2003 (Ham).
3. Bella was filed in the United States Patent and Trademark Office on August 27, 1999, and does not claim priority to the filing date of an earlier filed United States patent application. Ham was filed in the United States Patent and Trademark Office on May 28, 1999 and does not claim priority to the filing date of an earlier filed United States patent application.
4. Bella discloses a dual-mode passive splitter filter for an Asymmetric Digital Subscriber Line (ADSL) that has a first frequency response when the Plain Old Telephone Service (POTS) telephone is on-hook and a second frequency response when the POTS telephone is off-hook. Ham discloses a system and method for processing an input signal on a telephone line wherein the input signal comprises a first component associated with a first frequency band, a second component associated with a second frequency band higher than the first frequency band, and a third component associated with a third frequency band higher than the second frequency band.
5. August 27, 1999 is the earliest effective filing date attributable to the subject matter disclosed in Bella that is relevant to the inventions of at least independent claims 1, 6 and 13 of the present application. May 28, 1999 is the earliest effective filing date attributable to the subject matter disclosed in Ham that is relevant to the inventions of at least independent claims 1, 6 and 13 of the present application.

6. The inventions embodied in at least independent claims 1, 6 and 13 of the present application were completed (i.e., conceived and reduced to practice) in this country or in a NAFTA or WTO member country before the earliest effective filing date of Bella (before August 27, 1999) and before the earliest effective filing date of the Ham (before May 28, 1999).
7. The inventions embodied in at least independent claims 1, 6 and 13 of the present application are described in detail in a "Record Of Invention" dated February 19, 1999 submitted by the inventors named in the present application to the Legal Department at Siecor Corporation (hereinafter "the Record Of Invention"), a true and correct redacted copy of which is attached hereto as Exhibit A.
8. The Record Of Invention shows and describes the same frequency sensitive inductance devices shown in Figures 1-4 and described in the specification of the present application. In particular, Figures 3 and 4 of the Record Of Invention show a frequency-sensitive electrical circuit, comprising: first and second inputs (indicated at E and F, respectively, in Figures 3 and 4 of the present application); at least one transformer circuit (L3) having a first winding connected to the first input (E) and a second winding connected to the second input (F); a first load (R2) connected in parallel to the first winding; a second load (R3) connected in parallel to the second winding; first and second outputs (indicated at G and H in Figures 3 and 4 of the present application) connected to the first and second windings, respectively; and a capacitor (C4 in Figure 3 and C3 in Figure 4) connected between the first and second outputs (G, H). Thus, at least independent claim 1 of the present application was conceived and reduced to practice prior to the earliest effective filing date of both Bella and Ham.
9. Similarly, Figures 3 and 4 of the Record Of Invention show a frequency-sensitive electrical circuit, comprising: a first stage having first and second inputs (indicated at E and F, respectively, in Figures 3 and 4 of the present application) and first and second outputs (indicated at G and H in Figures 3 and 4 of the present application), the first stage

comprising a parallel-connected first inductor (L3) and first resistor (R2), connected between the first input (E) and the first output (G); a parallel-connected second inductor (L3) and second resistor (R3), connected between the second input (F) and the second output (H), the first and second inductors being inductively coupled; and a capacitor (C4 in Figure 3 and C3 in Figure 4) connected between the first and second outputs (G, H). Thus, at least independent claim 6 of the present application was conceived and reduced to practice prior to the earliest effective filing date of both Bella and Ham. It should be noted that the frequency sensitive electrical circuit consists of L3, R2, R3 and C4 in Figure 3 and L3, R2, R3 and C3 in Figure 4. Further, the frequency sensitive electrical circuit can be used to replace other conventional transformer/filter circuits, and thus, can be located at any "stage" in the POTS splitter design.

10. Similarly, Figures 3 and 4 of the Record Of Invention show a telecommunications splitter, comprising first and second signal inputs (indicated at E and F in Figures 3 and 4 of the present application); at least one transformer circuit (L3) having a first winding connected to the first signal input (E) and a second winding connected to the second signal input (F); a first load (R2) connected in parallel to the first winding; a second load (R3) connected in parallel to the second winding; first and second outputs (indicated at G and H in Figures 3 and 4 of the present application) connected to the first and second windings, respectively; and a capacitor (C4 in Figure 3 and C3 in Figure 4) connected between the first and second outputs (G, H). Thus, at least independent claim 13 of the present application was conceived and reduced to practice prior to the earliest effective filing date of both Bella and Ham.
11. Furthermore, the inventions embodied in at least independent claims 1, 6 and 13 of the present application were known to work for their intended purposes prior to the earliest effective filing date of Bella (August 27, 1999) and prior to the earliest effective filing date of Ham (May 28, 1999).

12. The date of issue of Bella (October 24, 2000) is not more than one year earlier than the date of filing of the present application (January 14, 2000), and the date of issue of Ham (May 20, 2003) is not more than one year earlier than the filing date of the present application.
13. All statements made herein of my own knowledge are true and all statements made herein on my information and belief are believed to be true.
14. I acknowledge that I have been duly warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001), and may jeopardize the validity of the present application or any patent issuing thereon.

Signed and dated on the date indicated below,

By: _____

Harley J. Staber

Date: _____

7/12/04

SIECOR

EXHIBIT A TO RULE 131
DECLARATION OF INVENTOR
HARLEY J. STABER
PAGE 1 OF 5

Siecor Corporation
Hardware and Equipment Technology
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Hickory, NC 28603-0489

RECORD OF INVENTION

Send original to [REDACTED] in the Legal Department; send a copy to: [REDACTED], your Supervisor and/or Manager, and retain one copy for your files.

Other Notes: First letter in the title should be capitalized; responses to questions should be underlined and double-spaced; memo should be sent to legal and signed by all inventors.

The back page should list the *Name, Home Address, and Citizenship*. This page should also be signed by two witnesses. (Samples attached).

Date Typed: 02/19/99

1. Name(s) of Inventor(s):

Harley
Wei Tian, Harley Staber

2. Short Title of Invention: A frequency sensitive inductance device in POTS Splitter design

3. Circumstances leading to the ideal constituting the invention: (e.g., problems and difficulties in present practice giving rise to the idea; cite any patents or publications which relate to this subject. If a supplementary sheet is required, it should be signed, dated, and referred to herein). Identify the problem solved by your invention. [Usually, (but not always), this can be answered by referring to the prior art, by pointing out what the prior art did and did not do. In most cases, your invention will either solve a problem the prior art did not or it recognized and then solved a problem the prior art did not know it had].

The basic functions and requirements for POTS Splitter are well defined in T1E1.4/98-007RS, Annex E. Normally, the POTS Splitter is designed as a LC low-pass filter. With a normal inductor, which is frequency independent in the voice rang, it is very hard to meet the insertion loss (voice band), return loss (voice band), and attenuation distortion (ADSL band) requirements all at same time. This invention is used to get lower inductive impedance at high frequency (3KHz-4KHz), so a better return loss could be obtained without interfering with other performance characteristics.

4. Detailed Description of Invention: (Give structure, mode of operation and results if machine; give details of structure and use if Article; give steps, conditions and results if Process; give components, proportion and synthesis if Composition of Matter. Include or attach sketches, blueprints, or photographs). There are very few inventions that do not require a drawing, e.g., chemical compositions. Even some chemical compositions are best shown by a drawing, e.g., three point (triangular) composition diagram. As a general rule, submit a drawing, even if hand drawn. Label and identify each and every element of the drawing using lead lines and numbers. Describe how each element is connected to other elements and how the combination of elements works to solve the problem(s) previously identified. DESCRIBE THE BEST MODE of your invention here.

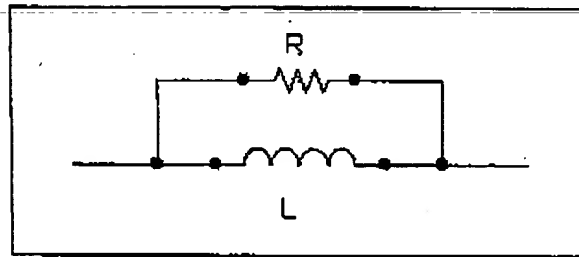


Figure 1. The basic structure

Figure 1 shows the basic structure of this invention. The total impedance of this device is:

$$Z_{(\omega)} = \frac{j\omega RL}{R + j\omega L} = \frac{j\omega R^2 L + \omega^2 L^2 R}{R^2 + (\omega L)^2} = R \frac{1}{1 + \left(\frac{R}{\omega L}\right)^2} + j\omega L \frac{1}{1 + \left(\frac{\omega L}{R}\right)^2} \quad (\text{Equation 1})$$

The imaginary part is:

$$\text{Im}(Z_{(\omega)}) = \omega L \frac{1}{1 + \left(\frac{\omega L}{R}\right)^2} \quad (\text{Equation 2})$$

As the frequency goes high, $\left(\frac{\omega L}{R}\right)^2$ goes high, and the inductance of this device, $L \frac{1}{1 + \left(\frac{\omega L}{R}\right)^2}$, goes

low due to the addition of the resistor.

In POTS Splitter designs, transformers are used as differential mode inductors, as shown in figure 2.

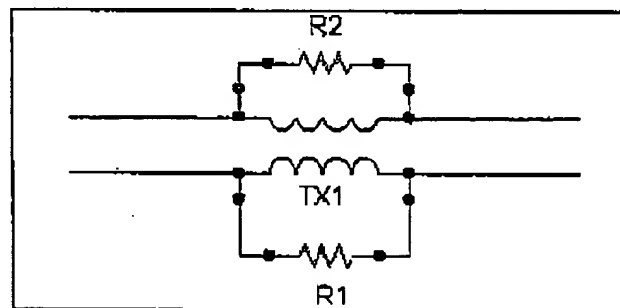


Figure 2. The actual device in POTS Splitter design

The transformation equation from Figure 1 to Figure 2 is:

$$R1=R2=R/2$$

$$L1 = L2 = L/4$$

(Equation 3)

Where

L1, L2 are the inductance of each winding of transformer.

Due to the different requirement for central office and premise end POTS Splitter, the value of R and L may be different in different POTS Splitters. Figure 3 and figure 4 show the two POTS Splitter designs with this frequency sensitive inductance device.

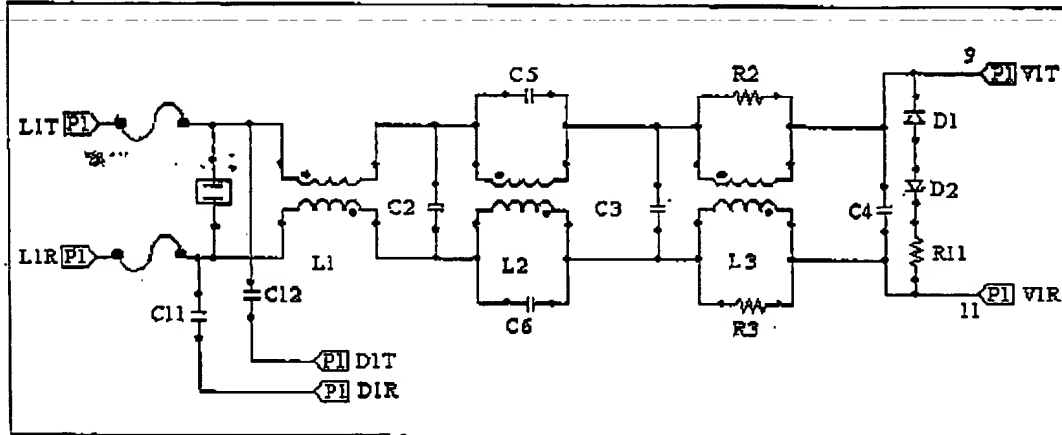


Figure 3 Central office POTS Splitter

Bill of Material:

L1	20 mH (±8%)
L2, L3	12 mH (±8%)
C11, C12	120 nF 400V (±10%)
C2	10 nF 400V (±5%)
C3	15 nF 400V (±5%)
C4	47 nF 400 V (±5%)
C5, C6,	4.7 nF 400V (±5%)
R2, R3	200

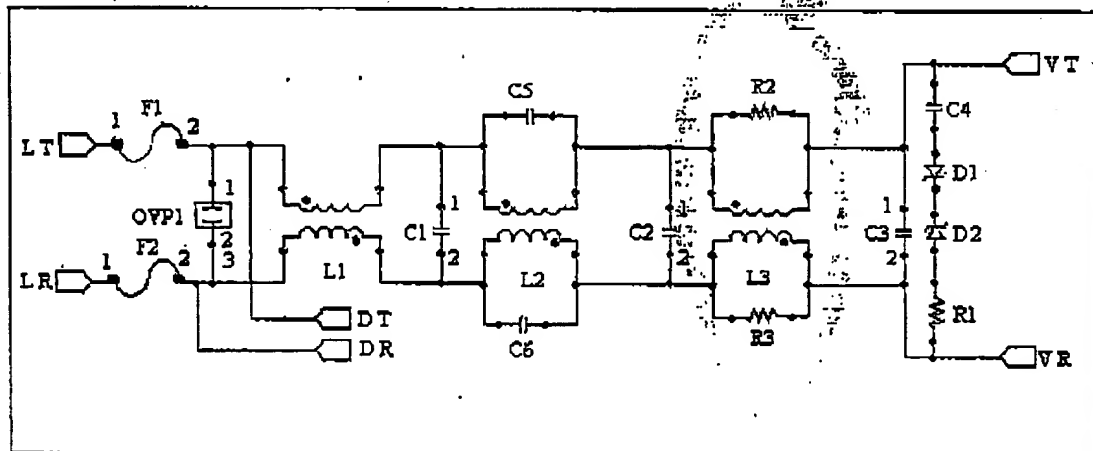


Figure 4 POTS Splitter

Bill of Material:

L1	20mH (±8%)
L2, L3	12 mH (±8%)
C1	33nF 400V (±5%)
C2	77nF 400V (±5%)

C4	0.47uF 100V
C5, C6	4.7 nF 400V ($\pm 5\%$)
R1	33.1K 1% $\frac{1}{4}$ W
R2, R3	100 10% $\frac{1}{4}$ W

5. Permissible variations in proportions and alternatives in elements of the invention: (In some inventions, limitations are applicable to one or more elements.) You have already described in Paragraph 4 the BEST MODE, YOU SHOULD NOW DESCRIBE VARIATIONS FROM THAT BEST MODE that also solve the prior art problem(s), although not as well as the BEST MODE.

In figure 3 and figure 4, the frequency sensitive device that consists of L3, R2, and R3 can be used to replace L2 and L3 with different values.

6. Advantages of the invention over the prior practice:

1. Minimize the magnitude of ripple at high frequency band (3K - 4KHz).
2. Maximize the return loss at high frequency band (3K - 4KHz).

7. Conception Date: (Give day, month, and year; specify records relied on):

 , specify records relied on Siecor Laboratory Notebook .

8. Earliest disclosure to others: (State where, when, and to whom; specify records relied on):

 , to specify records relied on Siecor Laboratory Notebook .

9. Date of earliest sketch or drawing: (Give Drawing Serial Number):

Part number: 02-003424, 02-003425, 02-003426

10. Earliest date invention was operated or produced: (State when, where, describe tests in detail, attaching a page, if necessary, and give names of witnesses present during operation or tests).

Time:
Location: Siecor ADSL lab.
Test Detail: All tests are conducted according to Siecor POTS Splitter test procedure for project and
Witnesse: Thien Nguyen

11. Commercial practice: (State earliest date of commercial practice. If not commercially practiced, state when same is expected to begin).

12. Further research is intended along the following lines:

A position change of this invention in figure 3 and figure 4 may cause different performance of POTS Splitter. Further research needs to be done to optimize position and value of components.

EXHIBIT A TO RULE 131
DECLARATION OF INVENTOR
HARLEY J. STABER
PAGE 5 OF 5SIGNATURE OF INVENTOR(S)CITIZENSHIP1. Wei Tian

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NOTE: If mailing address is different from home address, please indicate.

Witnessed by: Thien Nguyen

Date: _____

Witnessed by: _____

Date: _____